

CLAIMS

1. An apparatus for maintaining or reducing a level of liquids at the bottom of a gas producing well comprising
5 a constriction or throat section in which a production gas flow from the well generates a low pressure zone having a pressure less than the ambient formation gas pressure and
10 at least one conduit providing a flow path from an up-stream location within said well to said low pressure zone.

2. The apparatus of claim 1 wherein constriction is a Venturi.

3. The apparatus of claim 1 wherein the conduit has additional openings for the entry of formation gas at locations between the up-stream location and the low pressure zone.

4. The apparatus of claim 1 wherein the conduit has additional openings for the entry of formation gas at essentially one location between the up-stream location and the low pressure zone.

5. The apparatus of claim 4 having the additional openings located around the circumference of the conduit at the essentially one position between the up-stream location and the low pressure zone.

6. The apparatus of claim 3 wherein the conduit has a single opening for the entry of formation gas at a position

between the up-stream location and the low pressure zone

7. The apparatus of claim 3 wherein the conduit is adapted to maintain an essentially constant distance between
5 the openings and the level of liquids in the well.

8. The apparatus of claim 1 wherein the conduit is essentially straight.

10 9. The apparatus of claim 1 wherein the conduit terminates above a section of the constriction where the constriction has its smallest diameter.

10. The apparatus of claim 1 wherein the conduit
15 terminates in a section of the constriction where the constriction has its smallest diameter.

11. The apparatus of claim 1 wherein the conduit terminates below a section of the constriction where the
20 constriction has its smallest diameter.

12. The apparatus of claim 1 wherein the up-stream location is below a lowest gas producing perforation.

25 13. The apparatus of claim 1 wherein the constriction is located above a gas producing zone of perforations.

14. The apparatus of claim 1 wherein the constriction is located above a gas producing zone of perforations and
30 the upstream location is located below said zone.

15. The apparatus of claim 1 wherein the tube has a

length of more than 5 meters.

16. The apparatus of claim 3 wherein ratio of the cross-sectional area of the additional opening and of the tube is in the range of 0 to 1.

17. A method for maintaining or reducing a level of liquids at the bottom of a gas producing well comprising the steps of

10 constricting the production gas flow at a location within the well to generate a low pressure zone having a pressure less than the ambient formation gas pressure and

15 providing a conduit to establish a flow path from an up-stream location within said well to said low pressure zone.

18. The method of claim 17 further comprising the step of determining a gas flow rate, a height over which liquids have to be lifted to reach the low pressure zone and a number representing the size of the constriction such that the low pressure in the low pressure zone is sufficiently low to lift liquids over said height.

25 19. The method of claim 17 further comprising the step of latching a flow constriction onto a bottom section of production tubes in the well.

30 20. The method of claim 17 further comprising the step of providing at least one opening in the conduit for the entry formation gas into said conduits.

21. The method of claim 20 further comprising the step of maintaining the position of at least one opening at a essentially constant height above the level of liquid in the well.

5